

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) An etching method for forming a trench having a prescribed depth in an organic insulating film without using an etching stopper layer, comprising:

generating a plasma from a molecular gas containing hydrogen atom and nitrogen atom,

measuring a light emission spectral intensity ratio between cyan molecule and hydrogen atom in the plasma, and

carrying out an etching process while keeping the measured value at a value not exceeding a pre-scribed value light emission spectral intensity ratio CN/H at 1 or less, wherein H represents a light emission spectral intensity of hydrogen atom at a wavelength of about 486 nm and CN represents a light emission spectral intensity of cyan molecule at a wavelength of about 388 nm in the plasma.

2. (Canceled).

3. (Canceled).

4. (Currently Amended) The etching method of organic insulating film according to Claim-3 1, wherein said process is carried out while controlling the pressure of processing so as to come to a constant pressure.

5. (Canceled).

6. (Currently Amended) The etching method of an organic insulating film according to Claim-5 1, wherein a hydrogen gas and a nitrogen gas are used for a formation of said plasma and a mixing ratio of said hydrogen gas to said nitrogen gas is 10 or more.

7. (Original) The etching method of an organic insulating film according to

Claim 6, wherein the total flow rate of said hydrogen gas and said nitrogen gas is 200 cc/minute or more.

8. (Canceled).

9. (Canceled).

10. (New) An etching method for etching a sample including an organic insulating film using plasma, the etching method comprising the steps of:

generating a plasma while providing a mixed gas containing a hydrogen gas and a nitrogen gas or an ammonia gas in an etching process chamber in which the sample is placed;

measuring a light emission spectral intensity ratio of cyan molecule and hydrogen atom in the plasma; and

controlling a mixing ratio of the mixed gas to enhance the light emission spectral intensity of hydrogen atom to not less than the light emission spectral intensity of cyan molecule.

11. (New) The etching method according to claim 10, wherein the step of generating the plasma includes controlling a pressure in the etching process chamber to be lower than 10 Pa.

12. (New) The etching method according to claim 10, wherein the mixing ratio of the hydrogen gas to the nitrogen gas or the ammonia gas in the mixed gas is controlled to be not less than 10.

13. (New) The etching method according to claim 10, further comprising controlling a total flux of the mixed gas to be not less than 200 cc/min.

14. (New) The etching method according to claim 10 further comprising controlling an electric power for forming the plasma.

15. (New) The etching method according to claim 10 further comprising controlling output of high-frequency electric power of bias-application to the sample to be etched to enhance the light emission spectral intensity of hydrogen atom to not less than the light emission spectral integrity of cyan molecule.

16. (New) An etching method for etching a sample including an organic insulating film using plasma, the etching method comprising the steps of:

generating a plasma while providing a mixed gas containing a hydrogen gas and a nitrogen gas or an ammonia gas in an etching process chamber in which the sample is placed;

measuring a light emission spectral intensity ratio of cyan molecule and hydrogen atom in the plasma; and

controlling a flux of the hydrogen gas of the mixed gas to enhance the light emission spectral intensity of hydrogen atom to not less than the light emission spectral intensity of cyan molecule.

17. (New) The etching method according to claim 16, wherein the step of generating the plasma includes controlling a pressure in the etching process chamber to be lower than 10 Pa.

18. (New) The etching method according to claim 16, wherein the mixing ratio of the hydrogen gas to the nitrogen gas or the ammonia gas in the mixed gas is controlled to be not less than 10.

19. (New) The etching method according to claim 16 further comprising controlling a total flux of the mixed gas to be not less than 200 cc/min.

20. (New) The etching method according to claim 16 further comprising controlling an electric power for forming the plasma.

21. (New) The etching method according to claim 16 further comprising controlling output of high-frequency electric power of bias-application to the sample to be etched to enhance the light emission spectral intensity of hydrogen atom to not less than the light emission spectral integrity of cyan molecule.